Supplementary Information

The supplementary information section gives a more in depth explanation of various experimental parameters. The sections are:

1. Loading cells with fluorescent compounds
2. **Fig. S1.** Comparison of the two different cell trap-electrode designs.
3. **Fig. S2.** Delamination of SU-8 on glass upon exposure to aqueous solutions.

Loading cells with fluorescent compounds. Cells were incubated in ECB buffer with fluorescein diacetate (3.3 μM) and Oregon Green carboxylic acid diacetate (6.6 μM) for 30 min at room temperature. The ECB solution was then replaced with DMEM cutlture medium and the cells placed in an incubator (37°C, 5% CO_2) for 15 min. The cells were washed and immediately used for analyses.

Fig. S1. Comparison of the two different cell trap-electrode designs. A) Depiction of the two-electrode design. The electrodes were composed of gold overlying titanium. B) Images of the two-electrode design. The left image shows the upper and lower electrode addressing the cell trap. The right image is a close-up of the cell trap with the two underlying electrodes. C) Images of the single-electrode design. The left image shows the parallel lines of electrodes which are nearly transparent since they consist of a thin layer of indium tin oxide. The right image is of a single cell trap overlying an electrode.

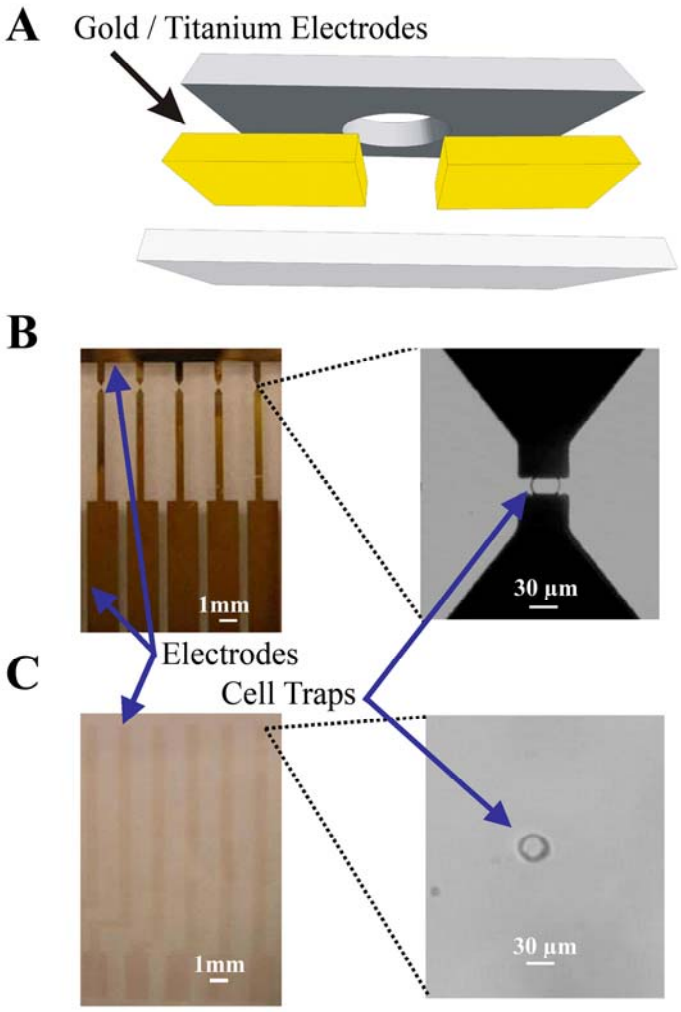

Fig. S2. Delamination of SU-8 on glass upon exposure to aqueous solutions. A, B) Images of SU-8 delamination after incubation in an aqueous buffer for 2 hours.